University of Gondar
Collage of Medicine and Health Science
Institutes of Public Health

Routine health information utilization and associated factors among health care professionals who work in public health institution North Gondar Public health institution, Amhara regional state, Northwest Ethiopia.2017.

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A THESIS SUBMITTED TO INSTITUTE OF PUBLIC HEALTH, COLLEGE OF MEDICINE AND HEALTH SCIENCES, UNIVERSITY OF GONDAR IN PARTIAL FULFILLMENT OF THE REQUIREMENTS, FOR THE DEGREE OF MASTER OF PUBLIC HEALTH IN HEALTH INFORMATICS.

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University of Gondar
Collage of Medicine and Health Science
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Department of Health Informatics

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Gondar, Ethiopia

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Acronym and Abbreviation

1.	DHS	Demographic Health Survey
2.	Epi-Info	Epidemiological Information
3.	HCP	Health Care Professionals
4.	HMIS	Health Management Information System
5.	HIS	Health Information System
6.	HSDP	Health Service Development Plane
7.	KII	Key Informant Interview
8.	MOH	Ministry Of Health
9.	MPH in HI	Maser of Public Health in Health Informatics
10.	NGO	Non Governmental Organization
11.	OR	Odds Ratio
12.	RHB	Regional Health Biro
13.	RHIS	Routine Health Information System
14.	RHSU	Routine Health Information Utilization
15.	SPSS	Statistical Package for the Social Science
16.	UNICEF	United Nation International Children Emergency Fund
17.	USAID	United States Agency for International Development
18.	VCT	Volunteers Counseling Testing
19.	WerHO	Woreda Health Office

Abstract

Introduction: Routine health information utilization is very important generates data collected from public health institution; the system is very important for measuring and improving the quality and coverage of health services at all level for doing the evidence-based decision making. Appropriate and well-designed health information flow to each of the health system backbone, information quality determinants and utilization remain weak with health institutions.

Objective: To assess routine health information utilization and associated factor among health care professionals work in public health institution in North Gondar zone, Amhara regional state, Northwest Ethiopia. 2017.

Methods: An institutional base cross-sectional study was conducted. The multi-stage simple random sampling technique was used to gate 720 health care professionals'. Structured & pretested questioners were used for data collection. The Data interred into Epi-Info version 7 using prepared data entry template. After editing data using the Epi-Info, it was exported to SPSS version 20 software for further cleaning and analysis purpose. The frequencies, proportion, and summary of statistical methods used to describe the study population in relation to the relevant variables. Bivariate and multivariate logistic regression applied to see the effect of each independent variable on the dependent variable.

Result: North Gondar administration overall current RHI utilization in public health facility was 78.5% (565/720) and RHIU in the institutional variation was 84.9% (422/497) and 64.1% (143/223) health center. Sex (**AOR=2.193, 95% CI: 1.471, 3.268***)**, Type of institution **(AOR=3.566, 95% CI: 2.390, 5.320***)**, Standard indicator (AOR=3.279, 95% CI: 1.904, 5.647*), Information processing **(AOR=1.905, 95% CI: 1.123, 3.230***)** and Governance (AOR= 1.966 95% CI: 1.312, 2.947***).

Conclusion: level of RHIU by health professionals' was adequate but not satisfied. Sex, Type of institution, Standard indicator, Information processing and Governance were factors that affect the level of routine health information utilization.

1. Introduction

1.1 Statement of the problem

In recent time resource constraints, good governance, transparency and accountability have become the mantra of development and consequently more attention is given to strengthening evidence-based decision-making and information systems period, international donors such as UNICEF and USAID heavily influenced health information system(1).

In the history of routine health information survey was the Work of John Snow in cholera epidemics was made possible by using health information registers (data) of births, deaths and address maintained in 1800s(2).

In the 1990 promote the development of routine health information systems in developing countries, emphasizing management of the health system(3).

Routine data can be collected as aggregated data (for example on tally sheets or tick sheets from which only total patients and priority interventions are counted, or patient-based data by means of tools containing more detailed data for each individual patient and also routine health information includes information enable early identification of specific problems (4).

Use of information depends upon the decision power of the people and the importance given to other considerations. However, without assessing use of information, it is difficult to know whether a RHIS is meeting its intended objectives, improving evidence-based decision-making, and consequently leading to better health system performance(1).

Unfortunate feature of health care systems in many parts of the world is that decisions are taken despite the absence of information use. One critical weakness across Africa is the current lack of capacity to effectively use data to monitor patterns of service use through time so that the impacts of changes in policy and service delivery can be evaluated(5).

Decision making in health is all too often based on political opportunism, appropriateness or donor demand and at times on infrequently repeated national studies like demographic health survey (DHS). The health data could be effective health assessments, health planning, detecting problems, defining priorities, identifying innovative solutions, and allocating resources for improved health outcomes(6).

The Sounded policy, resource allocation and day-to-day management decisions in the health sector require timely information from routine health information systems (RHIS) in order to track the delivery of quality health care services and related support systems, including equipment and supplies, finance, infrastructure and human resources. However, previous assessments in developing countries indicate that the RHIS is over and over again in confusion. Problems constraining RHIS performance at the country level include poor data quality, limited use of available information and weaknesses in how data are analyzed and poor RHIS management practices. In addition, health system managers in developing countries tend to miss the very purpose of the RHIS to provide data that can help track the performance of both programs and the overall health system, as the data are not typically used as part of the performance appraisal of facility staff or for the achievement of district and facility targets(7).

The ministry of health was concerned that district and facility staff rarely used routine data to identify performance gaps, make plans, and monitor progress. Information was available; why was it being used only to populate reports and not to drive decisions and program improvements in Ethiopia health care delivery service facility(8).

This study output can also help to effective implementation of deferent health policies such as, HSDP, social and community health insurance, health care financing, etc…to address constraints on performance, especially at district level.

This study will be assessing the routine health information utilization and associated factors in North Gondar.

1.2 Literature review

1.2.1 Over-view of Routine Health Information (RHI)

The study showed that inadequate capacity of Routine Health Information Systems (RHIS), many developing countries face a lack of quality health-related data and efficient data processes in the immediate consequences. RHIS at local, regional/state and national levels need to be strengthened so that they provide relief personnel up-to-date information to plan, organize and monitor immediate relief activities(9).

The analysis of roles and decision making structures to facilitate routine health information system (RHIS) implementation and use in public health facilities in South Africa identified a wide range of stakeholders in these processes. In addition to health system personnel with specific responsibility for RHIS, users with an interest in effective use of RHIS and RHIS outputs, and staff of external system and/or service providers, can play significant roles in RHIS implementation and use(10).

Health Information Systems (HIS) is potentially very important for the development of the health sector in Ethiopia. In spite of some efforts to make the health care system integrated with information systems, it continues to be not well-developed in the nation's health sector(11).

1.2.2 Routine health information system utilization and associated factor

1.2.2 .1 Assess how technical factors influence utilization of routine health information

The study conducted from South Africa the findings suggest that sixty four present of the respondents have poor numerical skills and limited statistical and data quality checking skills. While the average confidence levels at performing RHIS tasks is sixty nine present and only twenty two actually displayed competence above fifty percent did not, personnel show to be rationally motivated but there is considerable deficiency in their competency to interpret and use data this may undermine the quality and utility of the RHIS(12).

The Benin study conclude that majority of the participants were working in the public sector 74.8% from those professionals less than a quarter 22.4% had been trained or

retrained in the RHIS in the last 12 months. Among the health workers interviewed, 38.5% were also responsible for the health center in addition to their RHIS activities regarding the perceived complexity of the technical factors of the RHIS. The average score for perceived self-efficacy was 61.4%(13).

A study conducted in Kenya some health facilities receive technical support in data areas from NGOs 46% of respondents said no outside technical support was given and the result shows 45% had NGO supporting on data production and 9% were not aware if there is any support or not(14, 15).

The results show Philippians study conducted suggest three characteristics of definitions of indicators such as those that are one unsupported by the current conditions in the health system, data are required from a facility that cannot directly generate the data and definitions of indicators are not consistent with its corresponding program; two incomplete or ambiguous, which allow several interpretations; and three complete yet easily misunderstood by health workers. The study conclude that taking systemic factors into explanation, the case identification step needs to be reviewed and designed to generate intended data in health information systems(16).

The study conducted Uganda shows that majority of the health workers have lack of trainings in IT computer software, data management, use of new HMIS tools and not understanding standard indicators limited the routine use of health information, the health care professionals strongly have a problem that the understanding how to use the tools limits the use and the quality of data collected, hence limiting its use in decision making(17).

The findings of study conducted eastern Ethiopia was showed that 75% of units/departments reported that they had trained staffs and skilled human resources who were competent of performing HIS tasks, although only 37% of departments reported there were specifically assigned personnel for HIS activity. Similarly 35% and 19% of the facilities have separated HIS office and assigned budget for HIS(18).

The study conducted in Ethiopia results confirmed that indicators and information products are considered adequate but data management is very poor and the health information system resources, dissemination and use, as well as data sources coverage, are also inadequate also capacity of institutions to generate, analyze, disseminate and use health information differs each other(11).

1.2.2.2 Determine organizational factors influence utilization of routine health information

In developing countries, the poor quality of data derived from Health Information systems constitutes a problem that limits use of these data and contributes to the recurrent difficulties of health system management. The low level of involvement of health workers directly responsible for data may contribute to this poor quality(10).

The study documents in Gishu country show a Health Information System collection tool design experience by health workers and assesses its effect on data quality Monitoring indicators due to data entry time, percentage exhaustiveness and quality of data were assessed before and after using the new tools, the indicators shows that increased involvement of health workers in key stages such as the design of data collection tools can help improve data quality(19).

In Mozambique study showed that the level of supervision quality of the district health inspection has a great influence on the effective utilization of routine health information by the health facilities. A big percentage of the facilities receive one or more supervisory visit in three months, those facilities reporting one or more supervisory visit in the last three months, all reported that the supervisor checked data quality and helped them make a decision. None of the supervisors discussed facility performance using HIS information, nor gave feedback from their supervisory visit(20).

In the study that was a large training gap in dealing with data quality hence with good leadership there is need for monthly, quarterly or even annual review of data within various departments generating data to ensure that health facility staff within the health facility become champions and exchange capability in dealing with data. Such

reviews have the perspective of improving data quality and therefore through good leadership, drive the process which will lead to great output in generating high-quality information(21).

The study conducted Kenya shows that Health system organization influence the data use due to presence of challenges like duplication of work and too many indicators captured in tools by already overworked staffs, data collection is done as a requirement of the government or partners with competing interests hence fragmentation and un coordination from various levels, limited supportive supervision and feedback from the supervisors and the data is transmitted have poor coordination between themselves inadequate feedback from the levels to the health care providers(14).

1.2.2.3 Identify behavioral factors influence utilization of routine health information

The conducted study show many of the challenges that undermine effective use of RHIS and PHI data for analyses are related to the processes and context of collecting the data, excessive data requirements, lack of knowledge of the purpose of data and the limited use of data among those generating the data for this reason simplifying data sources, analysis and reporting; conducting systematic data quality audits; enhancing the use of data for decision-making; promoting routine chart review linked with simple patient tracking systems; and encouraging open access to RHIS the gapes the output finding (22).

1.2.2.4 Utilization of routine health information

The study showed that Eastern Ethiopia utilization rate was found to be 53.1%. Utilization of HIS was also compared based on health facility type and from the analysis the highest utilization rate was 55.3% by the health centers and 52.2% in hospitals(23).

The study conducted in southern Ethiopia, Hadiya zone the final all over result finding of the study revealed that utilization of health management information was 69.3% in all the study units/departments of health centers(24).

The study conducted Jimma zone Oromia regional state, south west Ethiopia finding of the study showed that all over utilization of health information was 32.9% in all the study units/departments, the finding of health center is 31%(25).
A national health information system assessment was carried out in 2008 using the Health Metrics Network framework and tools and this was updated and validated in 2011 as a step towards developing a national health information system strategic plan the finding of the study was 48% present but not adequate level of result health information dissemination and use at national level(11).

In South Africa study showed that routine health information utilization level as human factors findings the average confidence levels at performing RHIS tasks is 69%(12).

1.2.3 Research question

1. How technical factors influence utilization of routine health information in public health institution in North Gondar?
2. How organizational factors influence utilization of routine health information in public health institution in North Gondar?
3. What behavioral factors influence utilization of routine health information in public health institution in North Gondar?
4. What level of routine information utilization public health institutions have in North Gondar?

1.3 Scope of the study

The study focused on the determinants of routine health information utilization among health care professionals work in the public health institutions at North Gondar administration, Amhara regional state, Northwest Ethiopia.

The study was done for the fulfillment of Master degree of public health in health informatics.

The study result presented and submitted to the department and result and investigators recommendation also distributed to the respective participant institutions, WerHO and RHB finally send the study for publication for global information.

1.5 Justification of the study

The study findings was a good input for the public health facilities management on the relevance of routine health information for the purposes of decision making, planning and evaluation within the institution, WHB, RHO, and MOH.

The ultimate objective of a routine health information system (RHIS) is to produce information for taking action in the health sector. “Are we doing things right?” “Are we doing the right things?” If things are being done correctly, the data should demonstrate that all activities were carried out as planned. Positive results should follow and how organizational determinants lead other factors like the behavioral and technical in effective utilization of routine health information in the public health institution.

The RHIS is an important mechanism to identify gaps in the management of the health system and to resolve them to maintain and improve performance. With timely, complete and accurate information, managers can identify strengths and weaknesses of health system functions and services, and take appropriate action to maximize success.

The study will be a source of literature for scholars who wish to do further studies about health information utilization specifically for other interventions like resource mobilization or in other fields related to the factors that affect the effective utilization routine health information in the public health institutions.

This study will be an eye-opening experience for the Ministry of Health and other relevant health authorities in strengthening capacity and systems to improve routine health information utilization as per the recommendations highlighted by the study.

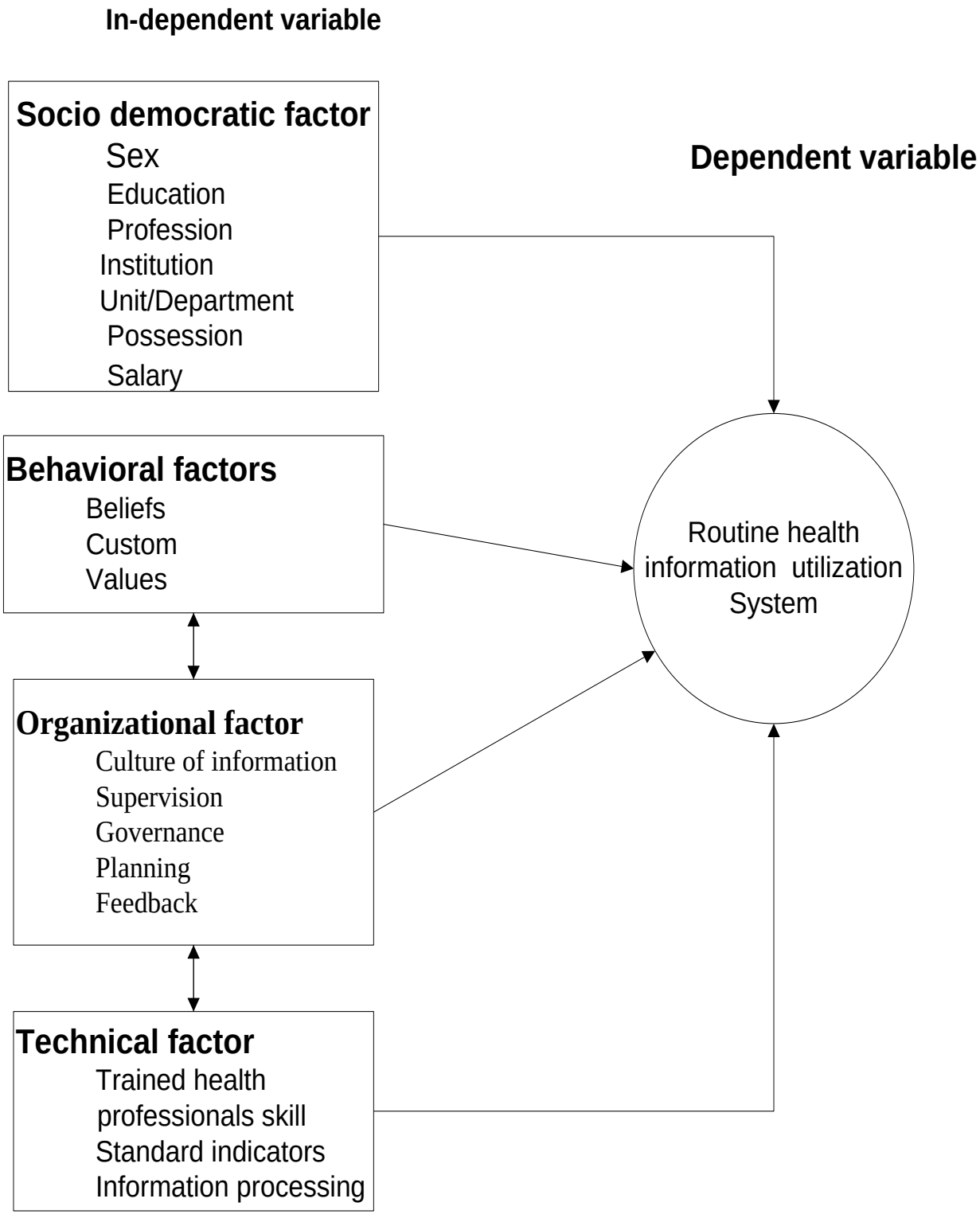

Figure 1: Conceptual Framework on routine health information utilization among health care professionals who works public health institution in North Gondar, 2017.

2. Objective

2.1 General objective

To assess routine health information utilization and associated factors among health care professionals who work in public health institution in North Gondar, Amhara regional state, North West Ethiopia. 2017.

2.2 Specific objectives

1. To determine the level of routine health information utilization among health care professionals who work in public health institution in North Gondar.

2. To identify factors associated with routine health information utilization among health care professionals who work in public health institution in North Gondar.

3. Methods

3.1 Study design and method

Institutional based cross-sectional quantitative study was done.

3.2 Study area and period

The study was conducted North Gondar, Amhara national regional state, Northwest Ethiopia from March to April 2017. North Gondar is one of the capital zones which are a historical zone in the country and it locates Northwest direction of the capital city Addis-Ababa and 747km far from the capital city of Ethiopia, also North Gondar 182km away from Bahir Dar; the capital city of Amhara region. It has 24 woreda and 3 town administrations with total 565 kebeles and it has 53,176sq, KM area.

According to the North Gondar health bureau 2017 report, it has a total population 3,539,837 of 3,211,176 (91%) live in rural area and 328,661 (9%) of them are urban residents and 1,852,543 (52%) are male and 1,687,294 (48%) female.

North Gondar zonal health administration has 9 hospitals, 135 health centers.

Figure-2: Study Area on the level of routine health information utilization among health care professionals work in public health institutions in north Gondar,2017.

3.3 Source population

All health care professionals work in North Gondar zone.

3.4 Study population

All health care workers who are working public health institutions at North Gondar health service administration.

3.5 Inclusion and exclusion criteria

3.5.1 Inclusion criteria

Health care professionals who are working at public health institutions in the study area at least for six month and above experiences were included.

3.5.2 Exclusion criteria

Health care professionals who are not in the working place during data collection.

3.6 Sample size determination

The study population was selected by simple random sampling from a source population from public health institution at North Gondar administration.

The sample size was determined by using single population proportion with the following assumptions.

$$\mathrm{n} = \left(\frac{(Z\,\alpha/_2)2\; p(1-p)}{(d)^2} \right) XD$$

$\boldsymbol{p}$ **= 53.1%** (Utilization of routine health information)(23).

$\boldsymbol{Z\,\alpha/_2}$**=** critical value at 95% confidence interval 1.96

$\boldsymbol{d}$ **=** Marginal error between the sample and population 0.05

$\boldsymbol{D}$ **=** design effect 2

$$\mathrm{n} = \left(\frac{(1.96)2 * 0.531 * 0.469}{(0.05)2} \right) 2$$

Based on the assumptions, the total sample size was 654 participants from public health institution then add 10% non-response rate then the final total sample size was 720 health care professionals.

The sample size was calculated by using Epi-Info vertion-7, according to the output of the software the highest score 327 were used.

Table 1: Dependent and Independent variable Sample size determination

Objective	**Assumptions**	**(n)Sample size**
Dependant variable		
RHIS Utilization	Population 2244, confidence level of 95%, Prevalence 53.1%(23) & margin of error 5	**327x2 = 654**
Associated factors		
Had Key indicator	P- 12.32 (26), power- 80%, CI- 95%, OR- 4.72 & Ratio 1:1	**184x2 =368**
Completeness of data	P- 10.27(26), power- 80%, CI- 95%, OR- 5.9 & Ratio 1:1	**156x2 = 312**

3.8 Sampling procedures

The multi-stage sampling procedure was employed which using simple random sampling to selecting the study sights and simple random sampling was used to identify health institutions as a sampling unit to get health care professionals' who are currently employed at the selected public health institutions. Since there was a health institution number in each district, health institutions were selected by using simple random sampling. The sample size for each district distributed according to the number of employers proportion to the number of the health institution.

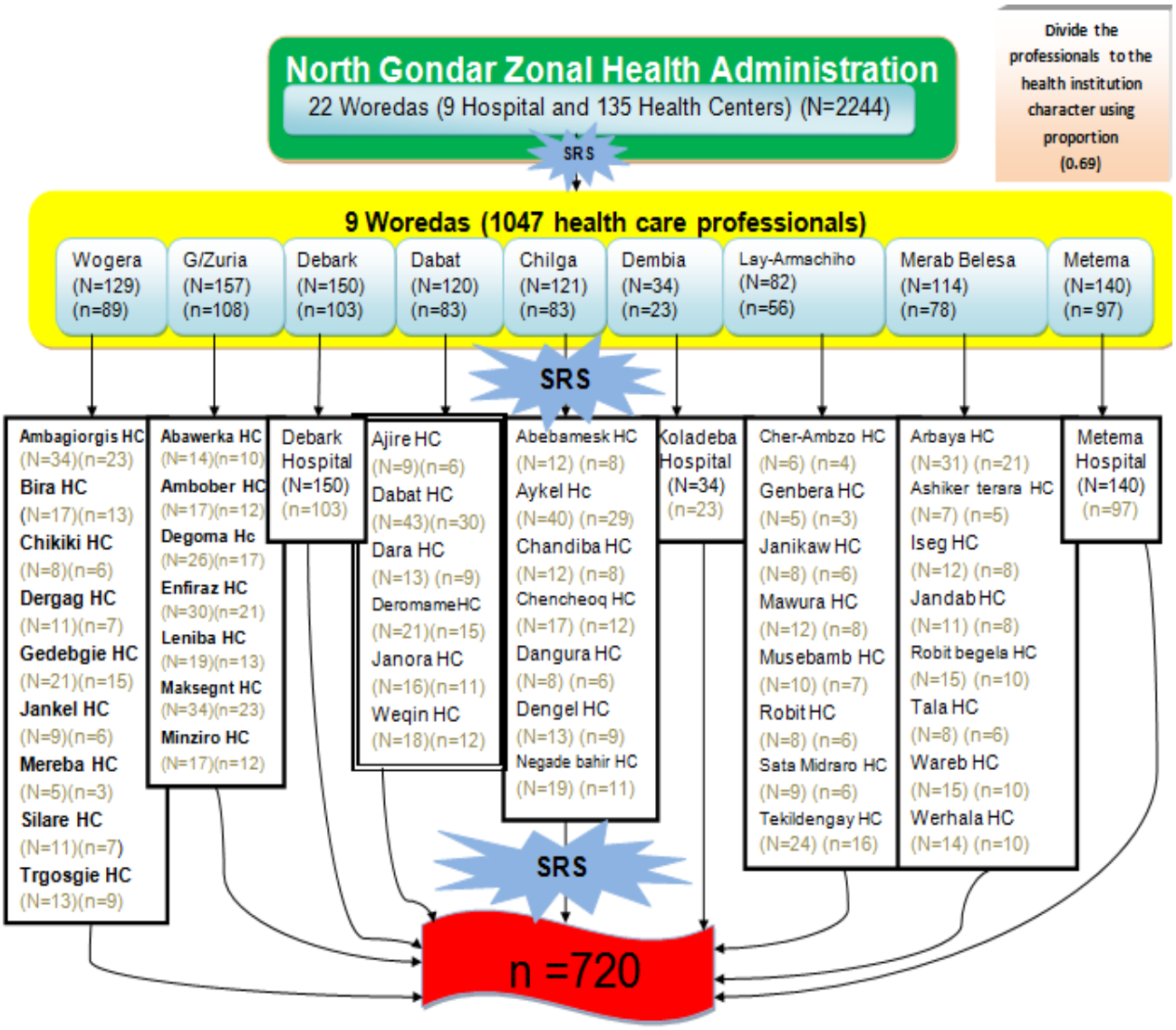

Figure 3: schematic presentation of sampling procedure

3.8 Data collection tool

The data collection was used self-administered structured questioners that were prepared in English and the questioners were pre-tasted out of the study area which is South Gondar district three health centers and one hospital.

3.9 Data collection procedure

Primarily, the principal investigators obtained a letter of introduction from the department of health informatics, institutions of Public Health College of medicine and health science, University of Gondar. After obtaining the ethical approval of the proposal principal investigator select nine diploma nurses for data collection and three BSc nurses for supervision and training was given for two days.

The data collection tool was pre-tested, reviewed and research assistant re-oriented to understand the study unit and data collection tools. North Gondar zonal health office administrators write permission letters for targeted public health institution managers for their permission of participation and to help data collectors and supervisors.

During the course of data collection the participants were informed about the study objective, process and confidentiality of the information, data collectors were supervised at the study site, meetings with research assistants was done every end of the day to discuss challenges and crosschecking for data completeness and accuracy, collected data were reviewed and checked for completeness before data entry and incomplete data was discarded and site revisit was done.

3.10 Variable of the study

3.10.1 Dependent variable

Utilization of routine health information

3.10.2 Independent variable

- **Socio demographic characteristics:**
  - Sex,
  - Education,
  - Profession,
  - Type of Institution,
  - Unit/Department,
  - Possession and
  - Salary
- **Behavioral factor:**
  - Believes,
  - Custom and
  - Values
- **Technical factor:**
  - Trained health ,
  - Profession' skill,
  - Standard indicators and
  - Information processing
- **Organizational factor:**
  - Culture of information,
  - Supervision,
  - Governance,
  - Planning and
  - Feedback

3.11 Operational Definition

Routine Health Information system: A system that provides information utilization to the process of decision-making at each level of units.

Public health facility: An Institution established and supported by the government that stands for health care service without profit.

Routine health information utilization: Use of information for improving health services effectiveness and efficiently through better management at all levels of health services, for example; data collection, processing, storage, retrieval, and dissemination. Respondents agree to implement more than (>) 60% of routine health information utilization questions could be considered as having adequate (good) routine health information utilization, however, if the respondent agrees equal or less (≤) 60% the utilization of routine health information is inadequate (poor)(11).

3.12 Data quality assurance

To ensure the quality of data, before applying the instrument to the actual study participant's pre-test was done. Who did not included in the main study and out of the study area that locates South Gondar.

Two days training conducted for data collectors and supervisors how to approach the study subject and the importance of informed consent of study subject. The completeness, consistency, and quality of data were checked on the daily basis by the principal investigator and if any problem amendment made before the next data collection time. In addition, data cleanup and crosschecking were done before analysis.

3.13 Data processing and analysis

The collected data from the field was entered, cleaned and edited by EPI-Info version-7 and transferred to SPSS version 20 for further editing and analysis. Data cleaning was performed to check for frequency, accuracy, consistency, and missing values of variables. Any error identified during data entry was corrected after revision of the originally completed questioner. All the data obtained from the study population was entered, cleaned and analyzed by the investigator.

To explain the study population in relation to relevant variable descriptive statistics were used. Associations between dependent and independent variables were associated and its strength presented using odds ratios and 95% confidence intervals. Both bivariate and multivariate logistic regression was used to assess the association between outcome and explanatory variables. A P-value <0.05 was considered statistically significant in this study.

The Hosmer and Lemeshow goodness of fit test was considered, a good as measured by Hosmer and Lemeshow test will yield large P-value.

3.14 Ethical Consideration

Ethical clearance was obtained from University of Gondar ethical review board before starting the actual work, the board confirms that the study was in line ethically and it has no harm on the respondents.

Letter of obtained support from the concerned bodies of North Gondar health office and submitted the respected departments and get informed written consent from the manager or head of public health institution after the clear explanation of purpose, duration, required samples and data collection method of the study.

The study subject has assured the confidentiality of their responses, nothing to harm them, the benefit of the study, no any secret behind it, are secured regarding the study, no any special payment for the participation of the study.

The participants not to be forced for their participation, they have full privacy in the process and they have full right to not participate if they are not interested.

The study subject participates to the research only they are volunteers even they can stop the middle of filling the questioner or did not answer if they don't like to fill selected questions.

3.15 Dissemination and utilization of the results

The result of the research will be disseminated to department of health informatics institute of public health school of medicine and health science, University of Gondar, North Gondar health service administration, Gondar town health office, study participant health institutions and finally we try to publish the result for further researcher who is interested to work in this area that they lives another area of in the world.

4. Result

4.1 Socio-demographic characteristics

From the total respondents (720) yielding a response rate of 100%, out of those respondents 223(31%) from the hospital and the remaining 497(69%) from the health centers.

More than half of the respondents are female 345(52.1), the majority are diploma holders 462(64.2), 358(49.7%) the respondents earn a monthly salary between 3,000-4,500EBR about 333(46.3%) respondents are work in the outpatient department. Distribution by profession category more than half of the respondents 363(50.4%) are nurses and position within the institution majority of the respondents are staffs 607(84.3%). (Tarable-2),

Table 2: Socio-demographic characteristics of health care professionals work in public health institution in North Gondar district zonal health department, 2017.

Variables	Frequency (n=720)	Percentage (%=100)
Sex		
Male	375	52.1
Female	345	47.9
Level of education		
Diploma	462	64.2
BSc	249	34.6
Masters	9	1.3
Profession		
Doctor	21	2.9
Health officer	56	7.8
Nurse	363	50.4
Midwife	114	15.8
Pharmacy	68	9.4
Laboratory	54	7.5
Environmental health	9	1.3
Occupational health	1	0.1
Nutrition	2	0.3
Psychiatry	3	0.4
Health informatics	19	2.6
Other health profession	10	1.4

Institution		
Hospital	223	31
Health center	497	69
Unit/Department		
ANC	37	5.1
ART clinic	12	1.7
Delivery room	21	2.9
Drug dispensary Pharmacy	45	6.3
Emergency OPD	18	2.5
EPI	11	1.5
Family planning	8	1.1
Ward	66	9.2
HMIS office	23	3.2
Hygiene & sanitation	12	1.7
Laboratory	51	7.1
OPD	333	46.3
MCH	37	5.1
Operation room	15	2.1
Pharmacy Store	20	2.8
Plan and program	11	1.5
Position		
OPD case team leader	65	9
Pharmacy head	5	0.7
Health center manager	19	2.6
Ward head	3	0.4
HMIS officer	19	2.6
Laboratory team leader	2	0.3
Staff	607	84.3
Salary		
1,499-3,000	181	25.1
3,001-4,500	356	49.7
4,501-6,000	84	11.7
6,001-7,500	57	7.9
7,501-10,000	32	4.4
>10,000	8	1.1

4.2 Respondents routine health information utilization in the public health institution, North Gondar health service administration, 2017.

Out of the total 720 study participants, 565 (78.5%) respondents were utilizing routine health information and the remaining 155(21.5%) of respondents were did not utilize routine health information.

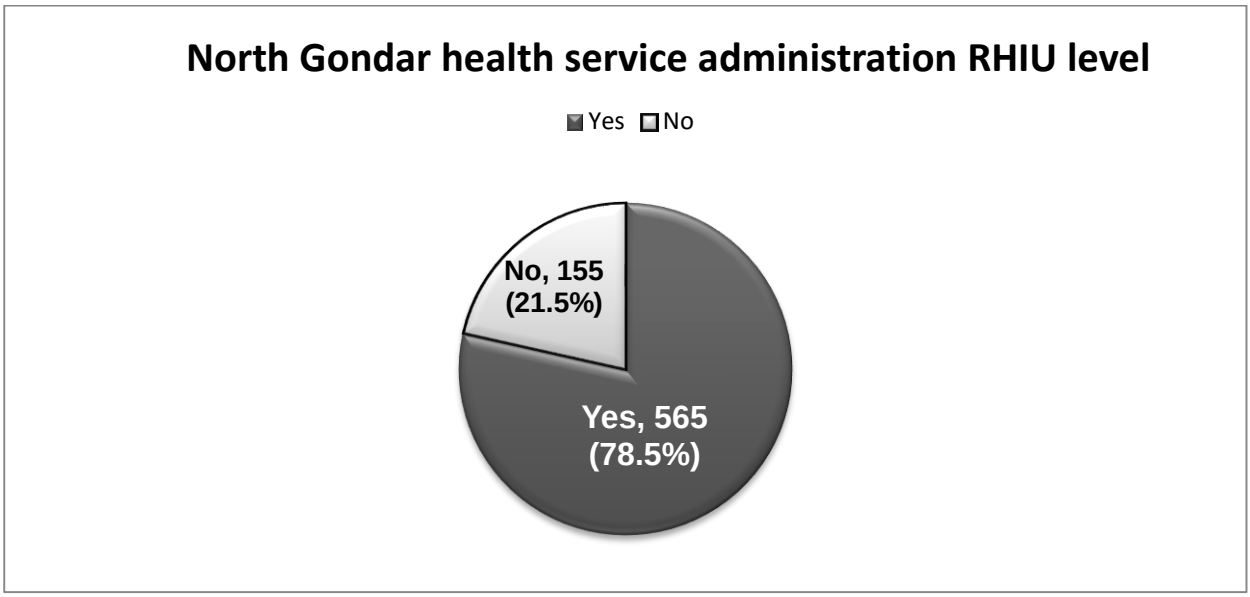

Figure 4: North Gondar Public health institution level of routine health Information utilization

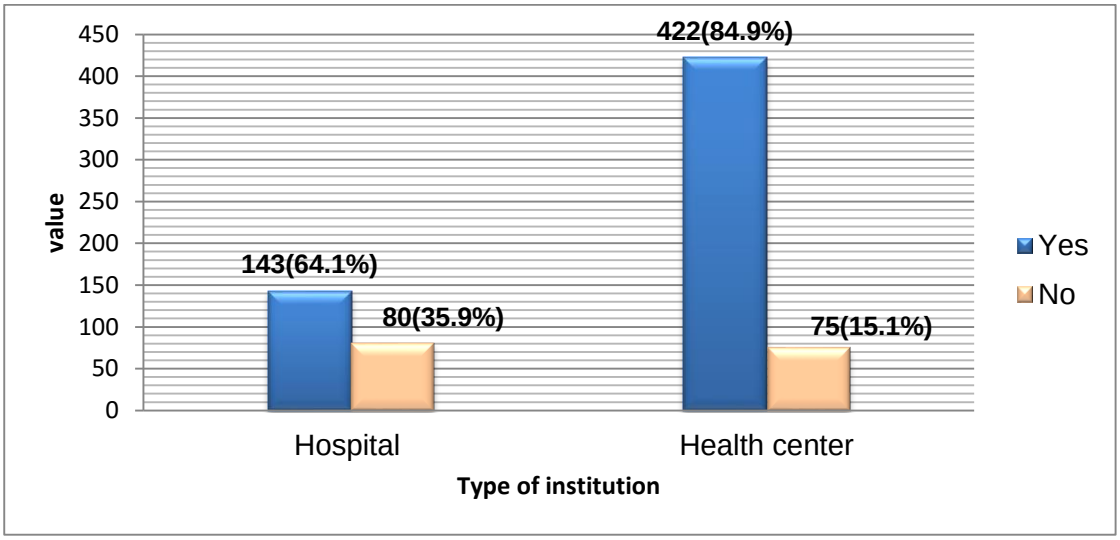

Figure 5: All over level of routine health information utilization among institutional variation at north Gondar district health service administration, 2017.

4.3 Level of routine health information in accordance with the socio-demographic Variation

From the total of 375 male respondents 308(82.1%) were utilize routine health information, from 345 female respondents 257(74.5%) URHI, on the educational States out of 462 diploma level educated health care professionals 80.1% were utilize routine health information, among the professional category health informatics 100%, laboratory technologist 83.3% and health officers 80.4% utilized routine health information.

According to the working type of institution majority of health center staffs 84.9%, on the hospital staff 64.1%, due to the department category Laboratory 84.3%, Hygiene & Sanitation 83.3%, HMIS officer 82.6% utilized routine health information.

Due to respondent's current position within the institution all pharmacy head 100%, on monthly salary majority between 6,001-7,500 payer health care professionals 93% utilized routine health information.

Table 3: Level of Routine health information utilization in the socio-demographic characteristics

Variable	Routine health information utilization level (n=720)	
	Utilize Frequency (%)	**Non utilize** Frequency (%)
Sex		
Male	308(82.1%)	67(17.9%)
Female	257(74.5%)	88(25.5%)
Level of education		
Diploma	370(80.1%)	92(19.9%)
BSc	188(75.5%)	61(24.5%)
Master	7(77.8%)	2(22.2%)
Professions		
Doctor	13(61.9%)	8(38.1%)
Health officer	45(80.4%)	11(19.6%)
Nurse	285(78.5%)	78(21.5%)
Midwife	87(76.3%)	27(23.7%)
Pharmacy	52(76.5%)	16(23.5%)
Laboratory	45(83.3%)	9(16.7%)
Environmental health	8(80%)	2(20%)
Health informatics	19(100%)	0(0%)

Other health profession	11(73.3%)	4(26.7%)
Type of institution		
Hospital	143(64.1%)	80(35.9%)
Health center	422(84.9%)	75(15.1%)
Department currently work-in		
ANC	25(67.6%)	12(32.4%)
ART clinic	8(66.7%)	4(33.3%)
Delivery room	16(76.2%)	5(23.8%)
Drug dispensary Pharmacy	35(77.8%)	10(22.2%)
Emergency OPD	13(72.2%)	5(27.8%)
EPI	7(63.6%)	4(36.4%)
Family planning	8(100%)	0(0%)
Ward	49(74.2%)	17(25.8%)
HMIS office	19(82.6%)	4(17.4%)
Hygiene & sanitation	10(83.3%)	2(16.7%)
Laboratory	43(84.3%)	8(15.7%)
OPD	274(82.3%)	59(17.7%)
MCH	28(75.7%)	9(24.3%)
Operation room	10(66.7%)	5(33.3%)
Pharmacy Store	14(70%)	6(30%)
Plan and program	6(54.5%)	5(45.5%)
Current position		
OPD case team leader	47(72.3%)	18(27.7%)
Pharmacy head	5(100%)	0(0%)
Health center manager	11(57.9%)	8(42.1%)
Ward head	2(66.7%)	1(33.3%)
HMIS officer	15(78.9%)	4(21.1%)
Laboratory team leader	1(50%)	1(50%)
Staff	484(79.7%)	123(20.3%)
Monthly Salary		
1,499-3,000	131(72.4%)	50(27.6%)
3,001-4,500	289(80.7%)	69(19.3%)
4,501-6,000	61(72.6%)	23(27.4%)
6,001-7,500	53(93%)	4(7%)
7,501-10,000	28(87.5%)	4(12.5%)
>10,000	3(37.5%)	5(62.5%)

4.4 Technical factor characteristics

Among the total respondents, 87(12.1%) were taken a training about routine health information utilization; on this respondent, 86.2% (75/87) of them utilize routine health information.

On the respondents' skill, 58 (8%) of the respondents have a skill, among this skilled health care professionals, 53(91.4%) were utilized routine health information.

Out of 252(35%) respondents who have the national standard indicator, 232(92.1%) was utilized routine health information.

Due to information possessing states 215(29.95) of the total respondents processed health data out of this 191(88.8%) were utilize health information.

Table 4: Technical variable characteristics on the level of routine health information utilization

Variable	Level of routine health information utilization (n=720)	
	Utilize Frequency (%)	**Non utilize** Frequency (%)
RHIU trained health care professionals		
Yes	75(86.2%)	12(13.8%)
No	490(77.4%)	143(22.6%)
Professionals skill for RHIS		
Yes	53(91.4%)	5(8.6%)
No	512(77.3%)	150(22.7%)
Professionals Knowledge about national standard indicators		
Yes	232(92.1%)	20(7.9%)
No	333(71.2%)	135(28.8%)
Professionals information processing states		
Yes	191(88.8%)	24(11.2%)
No	374(74.1%)	131(25.9%)

4.5 Organizational characteristics

According to organization culture of information utilization, 346(48%) respondents had a culture of information utilization within the organization according to these 282 (81.5%) respondents were utilizing routine health information. 415(57.65) respondents had supervision on routine health utilization out of these respondents 282(81.5%) respondents were utilizing health information.

On the implementation of governance out of the total respondents, 411(57.1%) respondents have good governance for routine health information utilization out of this 348(84.7%) of respondents were utilizing routine health information.

367(51%) out of the total respondents were planning for routine health information utilization from this 311(84.7%) utilize routine health information.

Table 5: Organizational characteristics on the level of routine health information utilization

Variable	Level of routine health information utilization (n=720)	
	Utilize Frequency (%)	**Non utilize** Frequency (%)
Information utilization culture		
Yes	282(81.5%)	64(18.5%)
No	283(75.7%)	91(24.3%)
Supervision states for RHIU		
Yes	346(83.4%)	69(16.6%)
No	219(71.8%)	86(28.2%)
Implementation of governance		
Yes	348(84.7%)	63(15.3%)
No	217(70.2%)	92(29.8%)
Planning for RHIU		
Yes	311(84.7%)	56(15.3%)
No	254(72%)	99(28%)
Feedback for RHIU level		
	324(83.5%)	64(16.5%)
	241(72.6%)	91(27.4%)

4.6 Behavioral characteristics

Among the total respondents, 422(58.6%) has the positive belief from this 337(79.9%) were utilized routine health information.

Out of the total respondents, 166(23%) had good custom from those respondents 135(81.3) were utilize routine health information. Among respondents give good value about routine health information 78.3% (90/105) were utilized routine health information.

Table 6: Behavioral characteristics on the level of routine health information utilization

Variable	Level of routine health information utilization (n=720)	
	Utilize Frequency (%)	**Non utilize** Frequency (%)
Believe for RHIU		
Positive	337(79.9%)	85(20.1%)
Negative	228(76.5%)	70(23.5%)
Custom for RHIU		
Good	135(81.3%)	31(18.7%)
Poor	430(77.6%)	124(22.4%)
Value for RHIU		
Good	90(78.3%)	25(21.7%)
Poor	475(78.5%)	130(21.5%)

4.7 Routine health information utilization purpose on the diction making for different activities.

Among the routine health information utilization implementer respondents, they used RHIU for the purpose of patient utilization 94%, for disease prevalence data 90.1%, for drug stock out 85%, for service evaluation 89.6%, for data quality monitoring 92.6%, for resource utilization 86.7, for department performance evaluation 88%, for annual plan implementation performance evaluation 89%, for staff routine activity performance evaluation 86.5%, for good experience selection within the facility 85%, for sharing data with other facility and stakeholders 82.8%, for decision making 87.8% and 87.1% for community mobilization.

Table 7 Activities that make decision making according to routine health information utilization at north Gondar district health service administration.

Activities that used from routine health information utilization	Decision making (n=%565)	
	Yes	No
	Frequency (%)	Frequency (%)
For patient utilization	531(96%)	34(6%)
For disease data	509(90.1%)	54(9.9%)
For drug stock out	482(85.3%)	83(14.7%)
For service evaluation	506(89.6%)	59(10.4%)
For data quality	523(92.6%)	42(%)
For resource utilization	490(86.7%)	75(13.3%)
For departments performance evaluation	497(88%)	68(12%)
For annual plan implementation performance evaluation	503(89%)	62(11%)
For the performance of staffs routine activity	489(86.5%)	76(13.5%)
For the selection of good experience with in the facility	480(85%)	85(15%)
For sharing of data for other facility and stakeholders	468(82.8%)	97(17.2%)
For decision making	496(87.8%)	69(12.2%)
For community mobilization and discussion	492(87.1%)	73(12.9%)

4.11 Attending training within twelve month.

Out of the total respondents, 23.9% takes training within twelve months. Among those trained health care professionals 96.6% trained for data collection, 97.6% for information analysis, 93.5% for health information presentation and 98.9% of the respondents were take training information use.

Table 8: Health professionals training at different health facility in north Gondar zonal health service administration, 2017.

Variable	Attending training on the last 12 month (n=720)	
	Trained Frequency (%)	Untrained Frequency (%)
Training on HI collection		
Yes	84(96.6%)	3(3.4%)
No	88(13.9%)	545(86.1%)
Training on HI analysis		
Yes	41(97.6%)	1(2.4%)
No	131(19.3%)	547(80.7%)
Training on HI presentation		
Yes	58(93.5%)	4(6.5%)
No	114(17.3%)	544(82.7%)
Training on HI use		
Yes	86(98.9%)	1(1.1%)
No	86(13.6%)	547(86.4%)

4.12 Health information recording on daily bases

Among the respondents day to day activity recording, 84% recorded data on their service by themselves. On the analysis of the day to day individual activity, 79% of respondents analyze their day to day activity by themselves, 12.7% were analyzing their data other health care professionals. On the data presentation, 79% of respondents present their data by themselves and use 84% respondents were done by themselves

Table 9: Daily health care service information recording among health care professionals works north Gondar health service administration, 2017.

Variable	Recording of daily health care service (n=720)		
	By my self Frequency (%)	**Other health care professionals** Frequency (%)	**Other reason** Frequency (%)
Health information collection			
Yes	379(84%)	70(15.6%)	2(0.4%)
No	215(79.9%)	54(20.1%)	0(0%)
Health information analysis			
Yes	131(87.3%)	19(12.7%)	0(0%)
No	463(81.2%)	105(18.5%)	2(0.3%)
Health information presentation			
Yes	162(79.8%)	41(20.2%)	0(0.0%)
No	432(83.6%)	83(16.1%)	2(0.3%)
Health information use			
Yes	242(84%)	44(15.3%)	2(0.7%)
No	352(81.5%)	80(18.5%)	0(0.0%)

4.13 Logistic regression analysis on routine health information utilization among health care professionals work in public health institution at North Gondar district health service administration, 2017.

As can be noted from the finding of the bivariate analysis, eight of the nineteen variables did not show significant association with the outcome variable. In this regard (Education, profession, type of unit/department, salary, believe, custom, values and trained health) were not shows significantly associated at the 0.05 level of significance.

Those variables which did not show significant association at 0.05 level of significance were also tested a 0.02 level of significance but each of variables does not show significance so excluded from further analysis.

Consequently, the multivariate logistic regression analysis which controls the effects of confounding variable was used by taking the eleven covariates (predictor variable) into account simultaneously. The backward stepwise regression was used which controls the problem of multicollinearity.

The variables which showed significant associations with the level of routine health information utilization in the bivariate analysis could not persist in having such associations in the multivariate analysis only five of the most contributing factor remained to be significantly associated with routine health information utilization, Such variable were (Position, Culture of information, supervision, planning and feedback (Table 13).

On the variation of sexual characteristics, this study result discovered that those male health care professionals were 2.913 times more likely to utilize routine health information as compared to female respondents [AOR=2.913, 95% CI: (1.471, 3.268)***].

According to institutional variation, the result shows that health care professionals who are working health center 3.566 times more likely utilize routine health

information as compared to health care professionals who are working hospital [AOR=3.566, 95%, CI: (2.390,5.320)***].

According to standard indicators, health care professionals who have standard indicator were 3.279 times more likely utilize routine health information as compared with who did not have standard indicator [AOR=3.279,95% CI: (1.904,5.647)*].

Among information processing, healthcare professionals who were processed health information by themselves were 1.905 times more likely utilize routine health information as compared to who did not process health information by themselves [AOR=1.905, 95% CI: (1.123,3.230)**].

According to governance, this study revealed that respondents who have good governance about routine health information utilization were 1.966 times more likely utilize routine health information as compared to the respondent who has poor governance [AOR 1.966, 95% CI: 1.312,2.947)**].

Table 10: Logistic regression analyses some of the selected variable on routine health information utilization among health care professionals work in public health institution at North Gondar district health service administration, 2017.

Explanatory Variable	RHIU (n=720)		COR (95%CI)	AOR (95%CI)
	Non utilize	Utilize		
Sex				
Male	67	308	**1.550(1.083,2.220)*** **	**2.193(1.471,3.268)*** **
Female	87	258	1	1
Type of institution				
Hospital	80	143	1	1
Health center	74	423	**3.198(2.212,4.623)*** **	**3.566(2.390,5.320)*** **
Professionals skill				
No	149	513	1	
Yes	5	53	3.079(1.209,7.841)*	
Standard indicator				
No	134	334	1	1
Yes	20	232	**4.654(2.826,7.664)*** **	3.279(1.904,5.647)*
Information processing				
No	130	375	1	1
Yes	24	191	**2.759(1.726,4.410)*** **	**1.905(1.123,3.230)*** **
Culture of information				
Poor	91	283	1	
Good	63	283	1.444(1.007,2.072)*	
Supervision				
No	85	220	1	
Yes	69	346	1.937(1.352,2.776)*	
Governance				
Poor	92	217	1	1
Good	62	349	**2.387(1.659,3.434)*** **	**1.966(1.312,2.947)*** **
Planning				
No	98	255	1	
Yes	56	311	**2.134(1.478,3.083)*** **	
Feedback				
No	90	242	1	
Yes	64	324	1.883(1.321,2.702)*	
Position				
Management	28	66	1	
member	126	500	1.684(1.038,2.730)*	
Staff				

*****significant at P-value<0.001, **at P-value<0.01, *at P-value<0.05 and 1=Reference category.**

5. Discussion

This study attempt to the level of routine health information utilization and associated factors among health care professionals who working public health institutions in North Gondar health service administration.

The result of this study discovered that 78.5% of respondents have a high level of routine health information utilization, this result was higher than the study conducted in Eastern Ethiopia has 53.1%(18) utilization of routine health information.

All over the outcome of this study were greater than the study conducted in southern Ethiopia, Hadya zone 69.3%(24), Jimma zone Oromia regional state, south-west Ethiopia 32.9% (25) and the assessment of national health information system in Ethiopia which was validated in 2011GC information dissemination and use was 48%(11).

The result of this study showed that the level of routine health information utilization in North Gondar zonal health service administration was higher than South Africa study 69%(12).

The study result variation may occur the organization culture of routine health information utilization was good due to planning about health information utilization and it have good governance within the institution, also the supervision and feedback is an influence to the performance of routine health information in North Gondar public health institution.

Comparison based on institution variation of the study result showed that 64.1% from the hospital and 84.9% from health center respondent were utilization routine health information which was higher the study conducted in Eastern Ethiopia, Dire-Dawa city which was 55.3% among the health centers and 52.2% from the hospitals respondents were utilizing routine health information(18).

A study conducted Jimma zone Oromia regional state, southwest Ethiopia health center staffs level of routine health information utilization was 31% which is lesser the result of this study 84.9%(25).

Variation of the result may occur to the competency of health care professionals about routine health information utilization on the zonal health office have a supportive supervision and the health center management member actively promote the value of routine health information utilization for evidence-based decision making.

Among the trained respondents 86.2% of them utilize routine health information which is the result higher as compare to the respondents who did not take training. From the skilled respondents' majority of them, 91.4% utilizes routine health information as compared to more likely non-skilled.

This result variation may occur due to trained and skilled health care professionals understood more than health information was not only to use patient care but it also financial management and evidence-based decision making.

Among the respondents, those who have national standard indicator 92.1% utilized routine health information which is higher as compared to who were not have national standard indicators and respondents who have good information processing states were 88.8% utilize routine health information among who have poor information processing states.

This might be due to the variation of awareness among health professionals, the variation of commitment of health care workers and the level of follow-up about national indicators and information processing.

According to the organizational variable, those respondents have a good culture 81.5% of them utilize routine health information within the institution which is higher than the respondents who did not have a culture of routine health information 24.3%.

Among the governance, 57.7% of respondents have a good governance out of those health care professionals 84.7% of them utilize routine health information. Out of the respondents who have planning for routine health information system, 84.7% of them utilize routine health information.

Among the total study participants, 54% of them have feedback about routine health information from those respondents 83.5% of them utilizes routine health information

as compared to respondents not taken a feedback which is 46% out of this 72.6% did not utilize health information.

On the variation of the result about the culture of the organization instead of routine health information utilization, governance, and feedback due to lack of clarity between the health care professionals about roles and responsibilities and unclear surrounding of the flow of information throughout the system having the direct influence on the use of data.

On the respondents' behavior about routine health information utilization, 58.6% of the study participants have positive believe, out of those respondents 79.9% utilized routine health information. Among the result of custom, 23% of respondents have a good custom out of those respondents 81.3% of respondents were utilizing routine health information.

From the respondents that give a good value for routine health information utilization, 78.4% of the study participants utilize routine health information.

Out of the total respondents that utilize routine health information 94% of them were utilized health information for patient utilization, 90.1% of respondents uses for disease data, 85.3% were utilize for drug stock out this result higher than the study conducted in Kenya 37% use for medical supply and drug management(14), 89.6% for service evaluation, 92.6% for data quality, 86.7% for resource utilization, 88% for department performance evaluation, 89% for annual plan implementation performance evaluation, 86.5% for staffs routine activity performance evaluation, 85% for good experience selection within the facility, 82.8% for sharing of data with other facility and stakeholders, 87.8% for decision making and 87.1% for community mobilization.

On the training of health professionals, 23.6% of respondents take training about routine health information utilization from those respondents 96.6% for health information collection, 97.6% for health information analysis, 93.5% for health information presentation and 98.9% for health information use.

Among day to day health care information recording, 82.5% (594/720) of respondents collect daily information data by themselves, 17.5% respondents their daily service health information data collected other health care professionals.

Among health care professionals who were collected health information by themselves were 84% collect their data by themselves, 87.3% of them don their information analysis by themselves, 79.8% of theme done their health information presentation by themselves and 84% for Health information use by themselves.

In this study, sex was statistically significant associated with routine health information utilization. Those male health care professionals were 2.913 times more likely to utilize health information as compared to female respondents **[AOR=2.913, 95% CI: (1.471, 3.268)***]**. The possible reason may be due to the variation in the level of awareness among health care workers, increase the commitment of health care workers in the health institution. Therefore, those males were more likely utilize routine health information. This result was supported by other studies done in Jima, Southwest Ethiopia(25).

According to institutional variation, the result shows that health care professionals who are working health center 3.566 times more likely utilize routine health information as compared to health care professionals who are working hospital **[AOR=3.566, 95%, CI: (2.390,5.320)***].** This may be due to the number of health facility and community health service North Gondar zonal health service administration highly focused on training about RHIU, supervision, feedback and governance. This result is supported by other studies done in Kitui County, Kenya(14).

Among standard indicators, health care professionals who have standard indicator were 3.279 times more likely utilize routine health information as compared with who did not have standard indicator **[AOR=3.279,95% CI: (1.904,5.647)*].** This may be due to standard indicators value may show the routine health information utilization performance which is indicators that heal to measure changes directly or indirectly within the institution that gives results due to training, supervision and feedback about routine health information difference. This result was supported by different studies done in Dire-Dawa, Eastern Ethiopia, and Hadiya, Southern Ethiopia(18, 25).

On the information processing, healthcare professionals who were processed health information by themselves were 1.905 times more likely utilize routine health information as compared to who did not process health information by themselves **[AOR=1.905, 95% CI: (1.123,3.230)**].** This may be due to the health care professionals variation of understanding which information is in demand, valued as the important resource and used at all levels to improve service delivery and strengthen facility evidence-based decision making within the health facility.

According to governance, this study revealed that respondents who have good governance about routine health information utilization were 1.966 times more likely utilize routine health information as compared to a respondent who has poor governance **[AOR 1.966, 95% CI: (1.312,2.947)**].** This may be due to the development and implementation of administrative policies, procedures and process at the same or deferent level of the health system influence routine health information utilization instead of supervision and feedback according to the health information system implementation states. This result is supported by other studies done in Jima, Southwest Ethiopia(25).

6. Strength and Limitation of the study

6.1 strength of the study

Able to cover many health facilities

6.2 Limitation of the study

The study did not have adequate local and national reference to make comparison.

This study does not including health professionals who are working in private institution.

Some of the study sight distances to the health facilities and did not have means of transport that are in very remote area disadvantaged for time constraints.

7. Conclusion

Level of information utilization by health professionals was adequate. Sexes, type of institution, standard indicators, planning and information processing have significant association with routine health information utilization.

The all over of routine health information utilization was adequate according to national level of indicated the performance of routine health information utilization 78.5%.

The level of routine health information utilization according to the results of this study was 64.1 for hospital staffs routine health information utilization states and health center routine health information states was 84.9% so the utilization of routine health information between hospital and health center was not eventually distributed.

Health professionals who works health center had relatively better routine health information utilization related training, supervision and feedback access as compare to hospital staffs but the all over training, supervision and feedback was not give good attention for routine health information utilization related outcome.

The all over routine health information utilization were adequate according to the result of this study but a planning, policy and governance implementation state in company with routine health information was not performed adequately.

8. Recommendation

Federal ministry of health should work to provide up to dated policy document on routine health information utilization.

Continues and fair supportive supervision and feedback mechanisms should be given by woreda, zonal and regional health bureaus for both hospital and health center public health institutions.

Adequate and all inclusive on job training and refreshment meeting are vital for health care professionals in the study area of minimizing behavioral and technical gaps.

Health institutions managers, woreda health office, zonal health office and ministry of health should give high attention for the enhancement of routine health information utilization at all level.

For researchers

This study is recommended to be conducted at regional and national level to know the current routine health information utilization states and identify potential factors to have regional and national for taking action on it.

9. Dissemination

The findings of the study will be forwarded to University of Gondar, school of public health, the study participant institutions, North Gondar District health office, Amhara regional health bureau and those governmental organizations and non-governmental organizations interested in the subject matter.

An effort will be made to present the findings in different conferences and workshops and will be sent to publication on scientific journal.

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7. Annex

INFORMATION SHEET

Introduction

This information sheet is explaining the reach project that you are asked to join by a group of research investigators. The main aim of this research project is “to examine the determinants of effective utilization of routine health information system among health care professionals work in public health institution in North Gondar, Amhara regional state, North West Ethiopia, 2017”. This research done for the fulfillment of muster of public health in health informatics (MPH in HI), the research team includes six data collectors, two supervisors, one final year MPH in HI graduate student and two senior advisors from university of Gondar collage of medicine and health scenic institution of public health department of health informatics.

Title of the research project

To assess of routine health information system utilization and associated factors among health care professionals work in public health institution in North Gondar, Amhara regional state Northwest Ethiopia.

Name of principal investigator: Eshetu Dagnew

Name of advisors:

1. **M/r Solomon Assefa (BSc, MPH)**
2. **M/s Atsede Mazengia (BSc, MPH)**

Name of sponsor: University of Gondar Referral Hospital

Purpose

The study is to assess routine health information system utilization and associated factor among health care professionals work in public health institution in North Gondar, Amhara regional state, Northwest Ethiopia.2017.The result from this study will be used to assist the affect effective utilization of RHI on technical, organizational and behavioral factors are used to generate recommendations those who are responsible to improve or prefer the situation or the result output for quality health service information documentation for proper health care decision making, quality of service, data management, quality report generation, budget brake down, good or poor performance indication and policy making.

Procedure

This study uses institutional cross-sectional study design and multiple data sources will be used to increase the validity of the findings.

Ethical clearance will be found from university of Gondar, letter of cooperation written from written from department of health informatics will be submitted the respective study area and permition to conduct the study will be obtained from the North Gondar health biro and the public health institution managers before beginning of the study.

For the study participants, participants will be invited to take part in this project, if they are willing to participate in the project, the need to understand the purpose and the ethical considerations of the project and sign the agreement form and they will be asked to give their response to data collector.

The data will be prepared and processed by computer soft-ware that is Epi-info and SPSS.

This research final out put or result will be reported for the respective recommended responsible concerned body and the study participant institutions.

Risk and/or discomfort

There is no any risk or discomfort the participant will face by participating in this research except dedication of time during participating of the study that the participant fills the questioners.

Any personal information will not be registered in this study and personal information registered will not be report or no any direct or indirect mechanism knows the participants individual report by others, every piece of information will be kept confidentially so there is no risk of participation in this research.

Benefit

The participant will not be get directly benefit for their participation but this research will benefit both the health care provider that participants and non participants of the study and the hospital and health center clients through quality of care, better decision making for patients, for fulfillment of health care documentation gaps and being health care documentation is good and appropriate intermesh of hospital important to carrying out research and health care delivery task utmost quality and for teaching learning process of health care professionals will be play a role.

Incentive/Payments for participants

There is no any payment or incentive to be participated in this project.

Confidentiality

All personal identifiers and personal information will not be taken and not accepted. The information collected from this research project will be kept confidentially and coded by using number.

The information that collects from the participants will be accessed by the researcher and research assistant only.

Participation and Right to refusal or withdrawal

The participant chooses that they participate or refuse this study by themselves. If the participant volunteer once to be participate this study can to fill the data and the can be withdraw at any time without consequences of any kind. They may also refuse to answer any question they are reluctant to answer and still remain in the study.

Contact

This research project will be reviewed and approved by the ethical committee of University of Gondar.

If one or more of the participant want to know the information he/she can contact the committee and the individuals (Investigator & Advisers) through the address below.

Investigator: -

Name: Eshetu Dagnew

Cell Phone: +251-0918-77-5432

E-Mail: eyou2004@gmail.com

Adviser:-

1. **Name:** Mr. Solomon Assefa

Cell Phone: +251-0918-77-5250

E-Mail: solomonazezo@gmail.com

2. **Name:** Mrs. Atsede Mazengia

Cell Phone: +251-0939-29-4010

E-Mail: atsedem.mazengia@yahoo.com

Consent Form

Hello!

Good morning/Good afternoon!

Dear participants this is a study questionnaire, to assess routine health information system utilization and associated factors among health care professionals work in public health institutions in North Gondar, Amhara regional state, Northwest Ethiopia 2017.

My name is _____ and I am the member of this study under University of Gondar collage of medicine institution of public health and department of health informatics.

The purpose of this study is generate information about routine health information system may help work related activity in the health institutions, stake holders and other participants to take actions based on the findings.

The study will involve varies interview and self administer questioners, in order to effectively attain the objective of the research, we are kindly request your help. There are questions related to routine health information system utilization and associated factor that you respond and/or fill completely and there is no need to put your name or any other personal identifier on the questioner, in this study individual response will not be reported or presented.

Your response will be confidential and your full right to refuse to respond to any of the questions partly or completely. However, your honesty answers to this question will help for better understanding of routine health information system utilization and associated factor, so we are requesting you to give your honest responses and to keep up participation. This question will be taking about 30-40 minutes.

Are you willing to participate in this study?

If yes pleas put **X** sign in the box ☐ and go to the next page, if no stop here.

Part one: Socio demographic related equations.

Instruction: The section below is Socio demographic related questions, it has 7 questions please choose and circle the choice right the most appropriate respond.

1. Sex a) Male b) Female
2. Level of education
   a) Diploma b) BSc c) Master d) PhD
3. Profession
   a) Doctor b) Health officer c) Nurse
   d) Midwife e) Pharmacy f) Laboratory
   g) Environmental Health h) Occupational health i) Nutrition
   j) Psychiatry k) Health Informatics
   Other please specify_____
4. Type of institution that you working in a) Hospital b) Health Center
5. Unit/Department currently you work in_____
6. Your current position in the organization _____
7. Your current monthly salary (Ethiopian Birr)
   a) 1,499-3,000 b) 3,001-4,500 c) 4,501-6,000
   d) 6,001-7,500 e) 7,501-10,000 f) 10,001-11,500

Part Two: Technical Factor

Instruction: The section below is Technical factor among effective utilization routine health information system **(**RHIS**)** related, it has 17 questions please respond the most appropriate answer.

8. Did you ever attend training on RHIS the last 12 month?
   a) Yes b) No
9. If your answer is yes for question number 8, in which topic you train?
   (You can choose more than one answer)
   a) Health information collection c) Health information presentation
   b) Health information analysis d) Health information use
10. In your institution, is there a RHIS regular on job training program?
    a) Yes b) No

11. If your answer is yes for question number 10, who takes the training?

(You can choose more than one answer)

a) RHIS focal person
b) Unit/Department head
c) For all health worker
d) For data collectors
e) All interested staffs
Other please specify_____

12. During the first employment day, Is the new staffs oriented about routine health information utilization?

a) Yes b) No

13. Who record daily activities that you provided daily service?

a) By myself b) Other health professional

Other please specify _____

14. For routine health information utilization, did you use any electronics device?

a) Yes b) No

15. If your answer is yes for question number 14, for what purpose do you use?

(You can choose more than one answer)

a) Health information collection
b) Health information analysis
c) Health information report
Other please specify_____

16. On your day to day work activity, which information related practice is activated?

(You can choose more than one question)

a) Health information collection
b) Health information analysis
c) Health information presentation
d) Health information use

17. Is National standard health indicators are well understood by health professionals?

a) Yes d) No

18. If your answer is yes for question number 17, how many indicators have in the nation? **(You can choose more than one answer)**

a) 120
b) 140
c) 122
Other please specify_____

19. In the health institution, are Health indicator targets displayed and accessible to all staffs? a) Yes b)No

20. For the assessment of progress; is performance of indicator monthly discussed?

a) Yes b) No

21. What are the common conventional tools used for data collection in your institution? **(You can choose more than one answer)**

a) Formats c) Registration note book

b) Tally sheets Other please specify_____

22. Is the tool for data collection correctly and completely fill by the health worker always?

a) Yes b) No

23. Is the unit/department, you are working, change the collected data into information?

a) Yes b) No

24. Is collected and submitted statistical data reported for the last three month?

a) Yes b) No

Part Three: Organizational factor

Instruction: The following organizational factor among effective utilization routine health information related questions have 13 questions. Please choose the most appropriate option that you agree.

25. Is facility system encouraging the culture of data use?

a) Yes b) No

26. Is Professionals using routine health information, for facility decision making in organizational context?

a) Yes b) No

27. For whom your generated report is reported? **(you can chose more than one choice)**

a) For department/unit head e) For woreda office

b) For higher management body of the institution f) For zonal office

c) For HMIS officer g) For Minister of health

d) For regional office

28. In what form the generated report is distributed?

a) Paper form c) SMS

b) Email Other please specify_____

29. Is the facility, regularly checked data quality?

    a) Yes b) No

30. Is there routine health information system monitoring and evaluation schedule within the organization?

    a) Yes b) No

31. If your answer is yes for question number 30, how many times the unit/department supervised within the last 6 month?

    a) Every month c) Once

    b) Quarterly Please specify other_____

32. If your answer is yes for question number 30, who did the monitoring and evaluation supervision? **(you can chose more than one)**

    a) Ministry of health d) Woreda health office

    b) Regional health office e) The facility administrator

    c) Zonal health office f) Routine health information commute

33. Is the facility have well streamlined health information policies?

    a) Yes b) No

34. Is the facility having routine health information system action plan?

    a) Yes b) No

35. For the decision of review routine health information action plan, is the facility have regular staff meeting?

    a) Yes b) No

36. On the evidence of routine health information report, do you receive feedback regularly?

    a) Yes b) No

37. If your answer is yes for question number 36, in which interval receive the feedback?

    a) Every report that I send c) Every six month

    b) Quarterly d) Annually

    Other please specify _____

Part Four: Behavioral factor

Instruction: The section below is behavioral factor among effective utilization routine health information related questions, it have 11 questions. Pleas Choose the appropriate.

38. Routine health information users demand for information.
    a) Strongly agree c) Neither agree nor disagree
    b) Agree d) Disagree e) Strongly disagree
39. Your facility has poor attitude toward data collection.
    a) Strongly agree c) Neither agree nor disagree
    b) Agree d) Disagree e) Strongly disagree
40. Believe that routine health information system is useless.
    a) Strongly agree c) Neither agree nor disagree
    b) Agree d) Disagree e) Strongly disagree
41. Patient treatment data not collecting.
    a) Strongly agree c) Neither agree nor disagree
    b) Agree d) Disagree e) Strongly disagree
42. Collecting routine health information data that adds no value and it irritates me.
    a) Strongly agree c) Neither agree nor disagree
    b) Agree d) Disagree e) Strongly disagree
43. Routine health information data collecting gives feeling me need for monitoring facility performance.
    a) Strongly agree c) Neither agree nor disagree
    b) Agree d) Disagree e) Strongly disagree
44. Health institution worker document their activities and keep records.
    a) Strongly agree c) Neither agree nor disagree
    b) Agree d) Disagree e) Strongly disagree
45. Routine health information outputs give feel committed in improving health status of the target community.
    a) Strongly agree c) Neither agree nor disagree
    b) Agree d) Disagree e) Strongly disagree

46. Understand and appreciate my role and responsibilities regarding to managed routine health information

a) Strongly agree c) Neither agree nor disagree

b) Agree d) Disagree e) Strongly disagree

47. Continues use of routine health information data collection had the benefit of patient as well as health facilities.

a) Strongly agree c) Neither agree nor disagree

b) Agree d) Disagree e) Strongly disagree

48. Decisions based on evidence improve services delivery.

a) Strongly agree c) Neither agree nor disagree

b) Agree d) Disagree e) Strongly disagree

Part Five: Routine health information system utilization

Instruction: The section below is about utilization states of routine health information system related questions, it have 21 questions. Pleas Choose the appropriate answer.

49. In your working facility, routine health information utilizes/uses within the facility and with stakeholders?

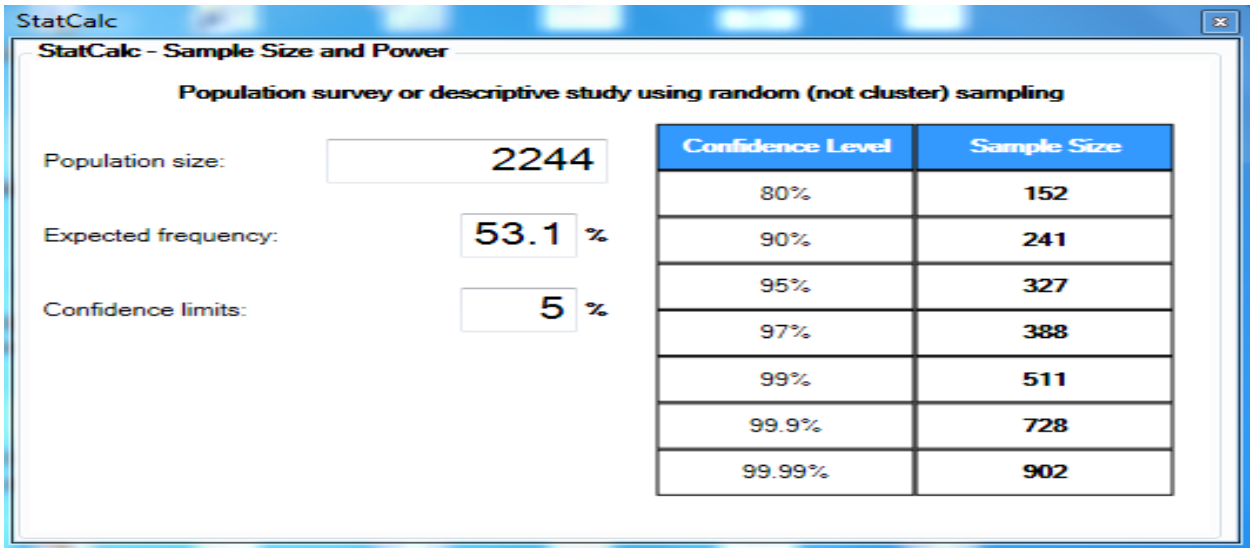
a) Yes b) No

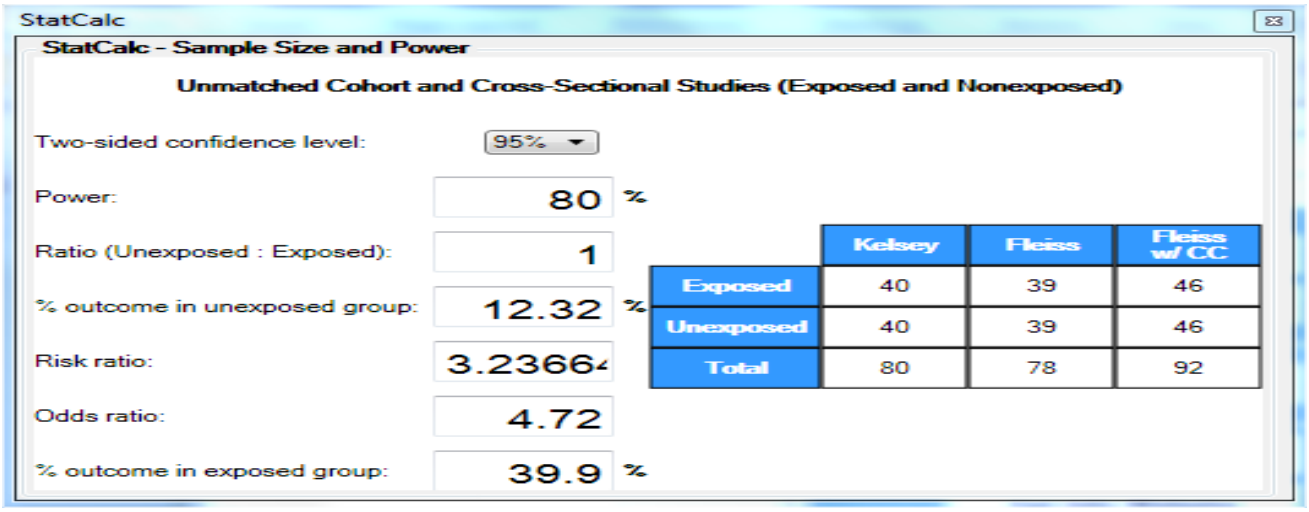
50. If your answer is yes for question number 49, for what purpose do you use,

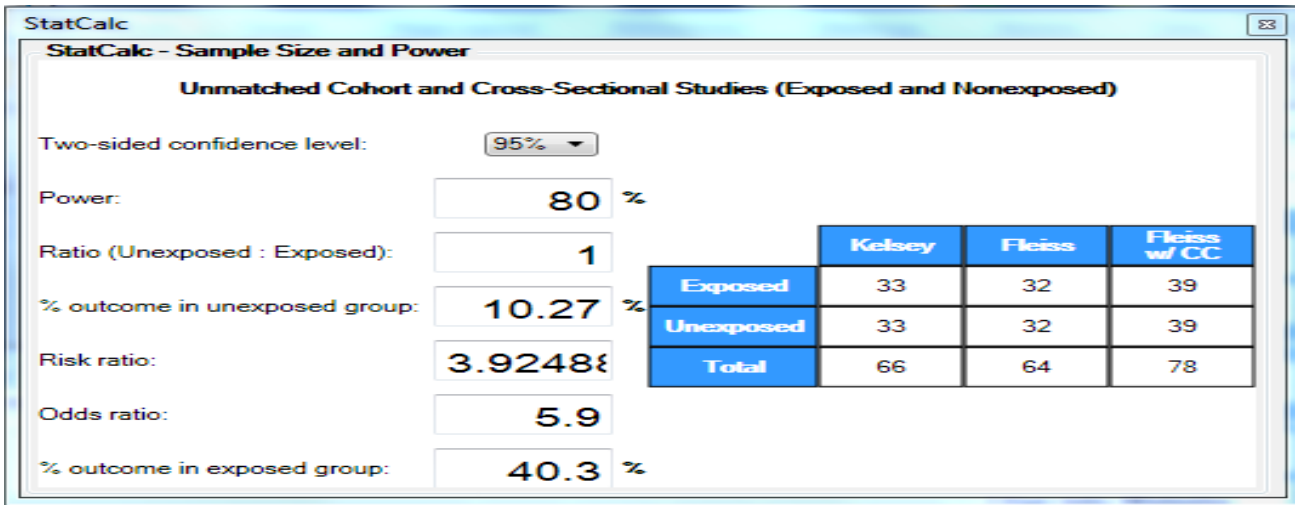
(Sign √ for your yes or no answer in the box)

	Yes	No
a) For patient utilization		
b) For disease data		
c) For drug stock out		
d) For service evaluation		
e) For data quality		
f) For resource utilization		
g) For departments performance evaluation		
h) For annual plan implementation performance evaluation		
i) For the performance of staffs routine activity		
j) For the selection of good experience with in the facility		
k) For sharing of data for other facility and stakeholders		
l) For decision making		
m) For community mobilization and discussion		

If you have other please specify_____







Fingers: - Epi-Info Version 7 sample size output of the study.

University of Gondar
Collage of Medicine and Health Science
Institutes of Public Health
Department of Health Informatics

Declaration

I the undersigned, senior MPH student declare that this research proposal is my original work in partial fulfillment of the requirement for the degree of Master of Public Health.

Name: _____

Signature: _____

Place of submission: Institute of Public Health, Collage of Medicine and Health Science, University of Gondar.

Date of submission:_____

This research proposal work has been submitted for examination with my/our approval as University adviser(S).

Advisors:

Name	Signature
Mr. Solomon Assefa	_____
Mrs. Atsede Mazengia	_____

University of Gondar
Collage of Medicine and Health Science

Institutes of Public Health

Department of Health Informatics

Assurance of investigator

I the undersigned, agrees to accept responsibility for science, ethical and technical conduct of the research project and for provision of required progress reports as pre-terms and conditions of the institutional review board or research and publication office of University of Gondar.

Student: Eshetu Dagnew

Date_____ Signature_____

Advisors:

1. M/r Solomon Assefa (BSc, MPH)
2. M/s Atsede Mazengia(BSc, MPH)

Approved by:

Name	Date	Signature
Mr. Solomon Assefa	_____	_____
Mrs. Atsede Mazengia	_____	_____